

Petro-Canada TechData (Europe)



HYDREX™ XV ALL SEASON HYDRAULIC FLUID

Introduction

Petro-Canada's HYDREX™ XV hydraulic fluid is an advanced formula, long life, anti-wear fluid designed for all season use in heavy duty hydraulic systems. HYDREX XV provides excellent operating and maintenance benefits for increased productivity in very hot or cold temperatures. HYDREX XV takes your equipment to higher levels of all-season performance.

HYDREX XV starts with the patented HT purity process to produce a 99.9% pure, crystal clear base oil. By removing the impurities that can hinder the performance of competitive conventional oils, and blending in our specialty additives, HYDREX XV retains its 'fresh oil' properties longer providing resistance to oxidative breakdown and outstanding wear protection in year round temperatures.

Features and Benefits

- **All Season Performance**
 - Allows hydraulic systems to start at temperatures as low as -40°C (-40°F) and run as high as +79°C (+174°F)[‡]
 - Shorter warm-up time on cold days and faster, smoother response for hydraulic systems
 - Extra protection from wear during periods of extreme high temperatures for greater peace of mind
- **Consolidate to one product all year long**
 - Inventory consolidation to just one fluid for reduced costs and less chance of misapplication
 - Protects against equipment failure during the wide temperature swings of spring and fall and eliminates chance of damage due to missed seasonal oil changes

Consolidate with HYDREX XV

Winter	Summer
ISO 22, 32 Hydraulic Oils	ISO 46, 68 [†] Hydraulic Oils



HYDREX XV

Reduce downtime, inventory costs, and misapplications by consolidating to HYDREX XV

[†] Up to operating temperatures of 75°C (167°F)

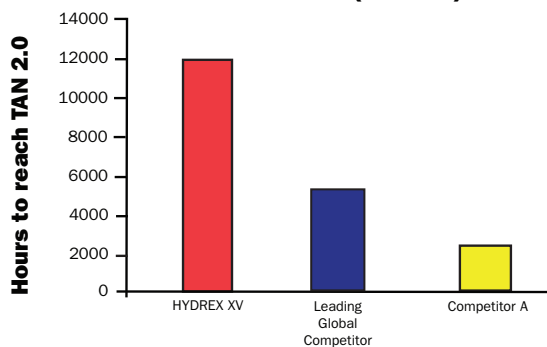
- **Outstanding oxidation and thermal stability**
 - Longer oil life, which helps extend drain intervals for reduced change-out costs and less reservoir exposure to external contaminants

What is the HT difference?

Petro-Canada starts with the patented HT purity process to produce water-white, 99.9% pure base oils. The result is a range of lubricants, specialty fluids and greases that deliver maximum performance for our customers.



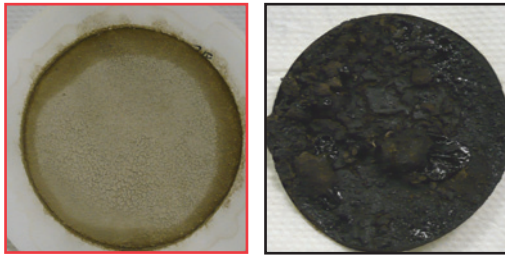
Oxidation Life Comparison ASTM D943 Test (ISO 46)



HYDREX XV lasts longer than the leading global competitor

- Minimizes sludge build up in the reservoir that can lead to equipment wear and shorten filter and oil life
- Decreases varnish build up that can interfere with servo and directional valve operational

[†] based on Petro-Canada's definition of mobile equipment applications



HYDREX XV
2,012 Hrs

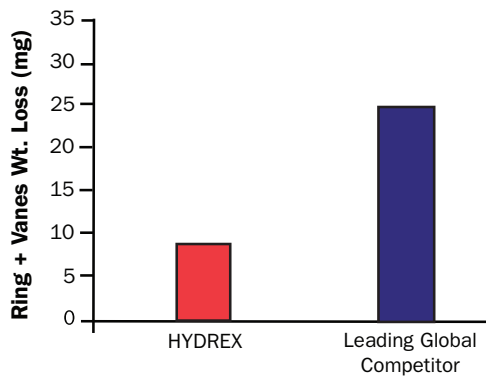
Leading Global
Competitor
2,012Hrs

HYDREX demonstrates significantly lower sludge formation, reflecting outstanding oil quality[†]

- **Exceptional anti-wear protection**

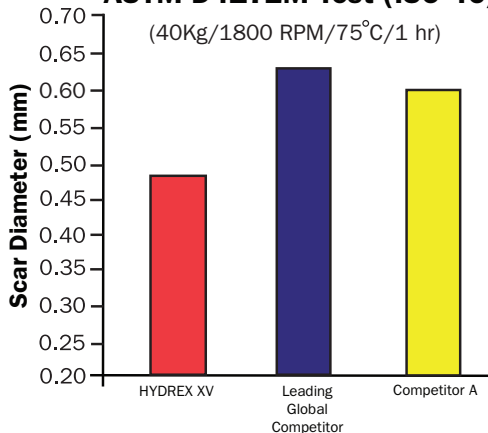
- Extends equipment life
- Reduces maintenance and mechanical failure
- Protects equipment being driven longer, harder and faster in tougher conditions
- Improves operating reliability over a wide range of pressures

Vickers 35VQ25 Hydraulic Pump Wear Test Comparison



HYDREX provides 2X better wear protection than the leading global competitor

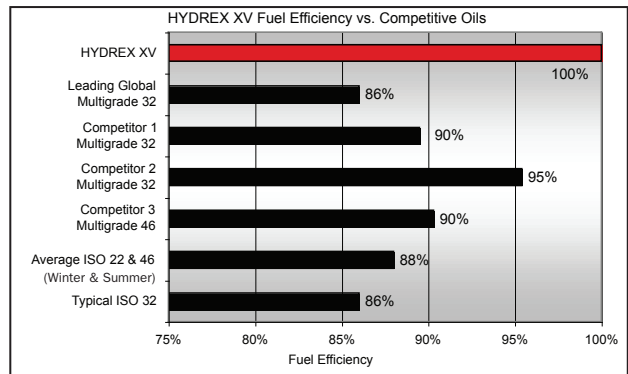
Four Ball Wear Test ASTM D4172M Test (ISO 46)



HYDREX demonstrates exceptional wear protection.

- **High after shear VI to maintain optimal fluid viscosity at operating temperatures**
 - Increased pump efficiency in outdoor applications

- Lower diesel fuel consumption for same amount of work, or increased equipment productivity
- Less CO₂ emissions



HYDREX XV provides better fuel efficiency vs. leading competitive hydraulic oils, given the same amount of work.

The chart demonstrates the relative fuel efficiency between HYDREX XV and competitor products (HYDREX XV represents a benchmark, and does not imply 100% fuel efficiency). Comparison based on after shear viscosities in Denison T6CM pump - B10 cartridge 2000 rpm, 200 bar, 70°C (158°F) and 90°C (194°F)

- **Improved rust and corrosion prevention**

- Iron and other metal components protected against water damage

- **Excellent water separability and hydrolytic stability allows oil to be reused**

- Oil separates readily from water without loss of performance additives

- **Improved foam and air entrainment performance**

- Prevents overflowing of reservoirs
- Eliminates “sponginess” from hydraulic systems and prevents pump cavitation

Applications

Petro-Canada’s HYDREX XV All Season hydraulic fluid is recommended for year-round use in piston, gear and vane hydraulic pumps found on industrial machinery and mobile equipment. HYDREX XV may be used in systems equipped with fine filters down to 3 microns without loss of additives or causing filter plugging.

HYDREX XV is approved for use in equipment manufactured by Bosch-Rexroth and is recommended for use in equipment manufactured by Eaton Vickers, Denison, Sauer-Danfoss, Racine, Oilgear, Hydreco, Dynex and others.

HYDREX XV is suitable for use where the following specifications are required:

- Eaton Vickers M-2950-S and I-286-S
- USS 127 Specification
- DIN 51524 Part 3 HVLP
- ISO 6743/4 Type HV

[†] Based on industry standard test ASTM D4310 (extended to 2,012 hours).

Typical Performance Data

PROPERTY	TEST METHOD	HYDREX XV
Start-up Temperature ¹ , °C/°F	-	-40/-40
Operating Temperature Range ² , °C/°F Mobile Equipment Industrial Machinery	-	-18 to 79 / 0 to 174 -18 to 75 / 0 to 167
Viscosity, cSt @ 40°C cSt @ 100°C SUS @ 100°F SUS @ 210°F cP @ -40°C (-40°F)	D445 D2983	43.2 10.5 216 61.3 9,250
Viscosity Index	D2270	244
Flash Point, °C/°F	D92	245/473
Pour Point, °C/°F	D5950	-48/-54
Rust Procedures A & B, 24 hours	D665	Pass
Oxidation Stability, hours	D943	10,000+
Oxidation Stability, mg sludge	D4310	Pass
FZG, Damage Stage	D5182	12
Dielectric breakdown voltage, kV	D877	32
Four-Ball Wear Test, Scar Diam. (mm) 40 kg, 1200 rpm, 75°C, 1 hr	D4172	< 0.5

The values quoted above are typical of normal production. They do not constitute a specification.

¹ Start-up is defined by the temperatures at which the oil viscosity is 10,000 cP.

² Operating temperature limits are determined by the equipment manufacturer. Petro-Canada has chosen to define the upper operating temperature to be the after-shear oil viscosity of 10 cSt for mobile equipment and 13 cSt for industrial machinery, while the lower operating temperature to be the fresh oil viscosity of 750 cP for both mobile and industrial machinery.

These ranges are only an approximation and the operator should always check the viscosity requirements as specified by their equipment manufacturer.

Mobile equipment typically refers to machinery that encompasses a transmission and braking system to allow and prohibit movement. Industrial machinery is typically stationary, with hard piping and auxiliary components in place.

Health and Safety

To obtain Material Safety Data Sheets (MSDS), contact one of our TechData Info Lines

TechData Info Lines

If you would like to know more about Petro-Canada's HYDREX XV, or any other product in our complete line of quality lubricants, please contact us at:

Lubricants Head Office
Petro-Canada Lubricants Inc.
2310 Lakeshore Road West
Mississauga, Ontario
Canada L5J 1K2



Canada - West Phone 1-800-661-1199
- East (English) Phone 1-800-268-5850
(French) Phone 1-800-576-1686
Other Areas Phone (416) 730-2408
E-mail lubecsr@suncor.com
Internet lubricants.petro-canada.ca

Petro-Canada Europe Lubricants Limited

Wellington House, Starley Way
Birmingham International Park
Solihull, B37 7HB, United Kingdom

Telephone +44 (0) 121 781 7264
Fax +44 (0) 121 781 7401
UK Website www.petro-canada.co.uk
German Website www.petro-canada.de

Petro-Canada America Lubricants

980 North Michigan Avenue
Suite 1400, #1431

Chicago, Illinois
USA 60611

Phone 1-888-284-4572
Fax (708) 246-8994
E-mail email@petro-canadaamerica.com

Petro-Canada Asia Pacific Holding Company Ltd.

Jai Shi Lubricants Trading (Shanghai) Co. Ltd.

1908 World Trade Tower
500 Guangdong Road, Huangpu District
Shanghai, China 200001

Phone +86-21-6362-0066
Fax +86-21-6362-0536
E-mail asiapacific@suncor.com
Website www.petrocanada.cn